

**DATA VALIDATION REPORT  
(QUALITY ASSURANCE ASSESSMENT)  
FOR  
FORMER SUTTON TOOL SITE  
306 MAGNOLIA STREET  
STURGIS, MICHIGAN**

Envirologic has completed a Phase II Environmental Site Assessment (ESA) of the Former Sutton Tool Site at 306 Magnolia Street in Sturgis, Michigan (subject property). This work was conducted through the St. Joseph County Brownfield Redevelopment Authority under the U.S. EPA Brownfield Assessment Grant number BF-96552901-2 for hazardous substances. The purpose of this Data Validation Report is to validate and verify the Phase II ESA data, and draw conclusions on the data in relation to the Data Quality Objectives.

**DQOS AND SAMPLE DESIGN REVIEW**

The subject property consists of one 2.9-acre parcel of land located in Sturgis, Michigan. The site is currently a vacant parcel and was once occupied by Sutton Tool Company. Sutton Tool Company, according to a previous Phase I Environmental Site Assessment and historical data, was a metal machining shop. A two-story building occupied the eastern half of the property. The building was razed in approximately 2005.

The property was initially developed for industrial operations in 1940, when Laughlin Tool and Engineering Company first constructed a building on the site. By 1959, Sutton Tool had acquired and occupied the site. Their operations reportedly involved machining of metal parts and heat treating operations. Fire department records reference an area of the building used for heat treating involving a salt/cyanide bath. Fire Department records also indicate that a small amount of flammable solvent was used for parts cleaning. Aerial photographs from 1971 and 1988 depict several 55-gallon drums stored outdoors along the southern property line. The Data Quality Objective (DQO) for this project was to determine the following:

- Are contaminants present at select locations associated with historic industrial operations? Specific locations of interest include two areas depicted on aerial photographs where 55-gallon drums and other materials were stored, a former heat treating operation and a former loading/unloading area.

The DQO is evaluated below with respect to the Recognized Environmental Conditions and the actual data collected.

**DATA REVIEW (DATA VERIFICATION AND VALIDATION)**

The data collected in the investigation was reviewed by the Data Manager, with supporting review provided by the Senior Environmental Scientist, David Stegink. The purpose of the review was to confirm (verify) that the data was collected in accordance with the Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The quality of the data was simultaneously assessed to determine that it was scientifically valid. The purpose of the data verification and validation was to determine the usefulness of the data in making decisions posed by the DQOs and for making decisions on future property use with respect to environmental concerns. All of the collected data was determined to be verified and valid using the PARCC criteria (precision, accuracy, representativeness, completeness and comparability) as explained in the following table:

Criteria	Field Data	Laboratory Data
Precision	Field methods and equipment calibration SOPs were followed in order to provide data within the precision limits of the field equipment. Duplicate samples were also collected to measure the precision of the analytical methods.	The laboratory analytical results met the Report Limits.
Accuracy	No analytes were detected in the trip blank or the methanol blank.	The soil and groundwater MS/MSD results were generally within acceptable limits.
Representativeness	The laboratory results were representative of field observations.	The samples for analysis were extracted from the original samples following standard methods, and thus are representative.
Completeness	All of the samples collected in the field were analyzed as intended.	All of the analyses provided by the laboratory were determined to be complete.
Comparability	Masked duplicate soil and groundwater samples were collected. Analytical results for the original and duplicate samples were comparable.	The samples were analyzed following standard methods and thus are comparable to cleanup criteria and other samples from the project site.

### **Field Procedures**

The Sampling Plan, SOP and QAPP were reviewed in a pre-field work meeting held with David Stegink; Erik D. Peterson, Project Manager; and Robert Webster, Field Geologist. Field notes and chain of custody procedures (including hold times) and instrument calibration were reviewed for this data assessment and found to meet the performance criteria.

### **Quality Assurance/Quality Control Samples**

The QA/QC samples collected for this project are presented in following table:

<b>Sample ID</b>	<b>Matrix</b>	<b>Type</b>
Trip Blank	Water	Trip blank prepared by Fibertec for VOCs sampling cooler.
Methanol Blank	Methanol	Utilized based upon the completion of soil sampling for VOCs.
EB-1S and EB-2S	Water	Equipment blank for auger spoon/GeoProbe™ macro-core sampler
EB-1 GW	Water	Equipment blank for Groundwater sampling equipment
M-1S	Soil	Masked Duplicate for SB-3 @ 5 ft
M-1 GW	Groundwater	Masked Duplicate of SB-2 (21-26)
MS/MSD	Soil	SB-3 @ 5'
MS/MSD	Groundwater	SB-2 (21-26)

#### *Trip Blank*

The purpose of the trip blank was to verify that no cross-contamination had occurred during sample handling and shipment. The trip blank was prepared by Fibertec and maintained throughout the sampling event with the other sample containers. No analytes were detected above the method detection limit within the trip blank.

#### *Equipment Blanks*

An equipment blank (EB-1S and EB-2S) was collected each day from the rinsate water after decontaminating the sampling equipment of the hollow-stem auger split spoon and GeoProbe™. Groundwater sampling activities were completed on only one day and an equipment blank was collected from the rinsate water after decontaminating the groundwater sampling equipment. The purpose of the equipment blanks were to ensure that no cross-contamination was introduced by the sampling equipment and that the sampling equipment was sufficiently cleaned. No analytes were detected above the method detection limit within the equipment blanks.

#### *Field and Methanol Blank*

Based upon the completion of soil sampling for VOCs, a methanol blank was submitted for laboratory analysis. The methanol blank was not opened in the field based upon the lack of indications of impact or potentially interfering ambient conditions observed during the sampling activity. No analytes were detected in the methanol blank.

#### *Duplicate Samples*

The purpose of the masked duplicate samples was to evaluate the ability of the laboratory to replicate data from the samples. The masked duplicate soil sample was collected from boring SB-3. No VOCs or polynuclear aromatic hydrocarbons (PNAs) were detected in either sample. Metals results for both the SB-3 sample and the mask duplicate sample were comparable. Cyanide was detected in the duplicate sample (230 µg/kg) while none was detected in the primary sample. The reported concentration of cyanide in the duplicate sample is below applicable cleanup criteria.

The masked duplicate groundwater sample was collected from boring SB-2. No VOCs or polynuclear aromatic hydrocarbons (PNAs) were detected in either sample. Cyanide and metals results for both the SB-3 sample and the mask duplicate sample were comparable.

#### **Laboratory Data**

Envirologic conducted a comparative analysis of the matrix spike and matrix spike duplicate (MS/MSD) results. The purpose of MS/MSD samples is to verify the accuracy and precision of the laboratory operations. MS/MSD soil samples were collected from sample SB-3 @ 5'. MS/MSD groundwater samples were collected from sample SB-2 (21-26). The spike percentage recoveries for the various analytes ranged from 30 percent to 500 percent. Certain VOCs failed adequate recovery in the laboratory control standard. However, these compounds were not present in the assessment samples and the low recovery does not affect the data quality objective.

#### **Data Reduction and Processing**

Limited data reduction and processing was conducted for this project. The field notes and well logs were composed by the Field Geologist. The analytical laboratory data sheets were reviewed and reduced into a table by the Data Manager for the Phase II ESA report. The Phase II ESA report was reviewed by the Senior Environmental Scientist (David Stegink).

### **STATISTICAL TEST**

Several statistical methods were used for the laboratory data. The first statistical analysis was the comparison of the actual reporting limit to the laboratory standard reporting limit. The standard reporting limits were achieved. The second statistical analysis was the direct comparison of the detected analytes to the cleanup criteria. Conclusions could be drawn from a direct comparison of numbers, and thus further statistics were not employed to develop background concentrations.

### **CONCLUSIONS**

All of the data collected has been verified, and is valid to make decisions for the DQOs. The data presents conditions that would logically be expected based upon the identified site use history.